

IMPACTS OF INADEQUATE INFRASTRUCTURES PROVISION ON REAL PROPERTY VALUE: A COMPARATIVE STUDY OF AGBAMA AND EHIMIRI HOUSING ESTATE, UMUAHIA, NIGERIA

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ABSTRACT

The purpose of the study is to investigate and analyses the impacts of inadequate infrastructures provision on real property value in Agbama and Ehimiri Housing Estate located in Umuahia City of Nigeria. Both open and closed ended questionnaire was designed with multiple choice test questionnaire survey because of its flexibility and simplicity benefits in data interpretation. A total of 400 (Nr) questionnaires were administered to households and landlords of the housing estates, and of these number, 343 (Nr) questionnaires were completed and returned, representing a response rate of 85.6%. The collected data was analyzed using the SPSS package of descriptive frequencies and percentages, as well as the Relative Importance Index (RII) was adopted in ranking of the identified infrastructures from high to low magnitude of importance based on the respondents' indication. The findings reveal that there were lack of or inadequate good road network, electricity supply; portable water; drainage system; waste management system; recreational facilities; in Agbama housing estates. It further found that these inadequate infrastructures and its weak correlation contribute to increasing negative impacts on real property and its rental value.

The study probe into this area helps to identify, assess and establish the impacts of inadequate basic infrastructure provision on real property value, and that these infrastructures are needed to be provided in housing estate if real properties and its rental value were to be sustained. This, the property developers, government, policy makers and other relevant stakeholders should take into consideration in any future housing estate units' provision since it should improve the living conditions and satisfactions to either the sitting or prospective residents/tenants to the housing estates.

KEYWORDS: Housing Estate, Inadequate, Infrastructure, Real Property, Value

INTRODUCTION

The rationale behind this study investigation is on the premise that the expected real properties and its values in housing estates are dwindling, and was anticipated to be qualified by incessant inadequacy of infrastructural provision in housing estates. The effective economic activities functioning and development level fulfillment in either urban or rural environment is reliant on availability of sufficient infrastructural provisions such as: good road network; portable water supply system; drainage system etc. (Ihuah and Benebo, 2014). While the overall importance of these infrastructures adequate provision cannot be over emphasized; their significance of provision, which is to enhance real property values, as well as promote the social and economic life of the people in that built environment is essential in this study specific. Further, adequate infrastructural provisions are expected to be the driven force behind the rapid growth of socio-economic

activities in a society, hence diverting focus on their adequate provision should not be compromised. However, Lawal (2002), Ihuah and Eaton (2013) and Ihuah and Fortune (2013) contended that the Federal Housing Authority of Nigeria have concentrated their energies mainly on the provision of numbers of housing units without giving adequate attention to adequate infrastructure provisions to these developed housing estate units. And this is reflecting in the poor physical outlook of most of these housing estates across Nigeria housing sector (Kadiri, 2004; Ihuah and Fortune, 2013; NHP Report, 2011). Even where some of these infrastructures are provided to the housing estates, their maintenance and sustenance have been problematic since there is no post-construction management framework adopted for the maintenance management of the provided infrastructures in Nigeria (Ihuah and Benebo, 2014). But, the inadequate infrastructures provision problems are not just typical to a particular reason rather its cut across several reasons (Ihuah and Benebo, 2014; Ayodele and Alabi, 2011), and is assumed to be creating a diminishing impacts on the value of properties located close and within the housing estates. The expected prominence of providing adequate infrastructure was to improve real property values and the built environment as earlier mentioned. However, infrastructures provisions are improvement embarked upon within the society with the purpose of adding to create unique products and services (Gardner, 2005). These purposes are most times defeated because of the inadequate provision of these vital infrastructures in the housing estates, and as its contested under the study specific frame.

A real property (housing estates or buildings) despite amongst the infrastructures, should be capable of having at all times sustained value, as well as the right of: possessions; uses; and disposals; excisable upon it (Ihuah and Benebo, 2014). Again, the real property value is related to the type of interest substituting in that real property, but these rights are also enhanced or improved by the adequacy of the essential infrastructures provided to the housing estate. Also, the location of the property and the level of demand and supply of such real property are equally significance, but the accessibility landscape and the availabilities of other infrastructures in where the real property is located should be of much more significance to determine the property values (Ihuah and Benebo, 2014). Though, the value in itself is not intrinsic (Schram, 2012) rather depends on the benefits derivable from that property, as well as having an able and willing purchaser to pay for such property. Therefore, this property value might be assumed to be influenced by the adequacy or inadequacy of these infrastructures provision to a housing estate unit. Successively, it is stressed here that the adequacy or inadequacy of the required infrastructures provision to housing estate units are domineering in defining whether the real property value should be appreciating or nominal (Ihuah and Benebo, 2014). But, in the circumstance of the study where it is assumed that the infrastructures are inadequate, the probability that the expected improved and sustainable real property value will dwindle is very high. Hence, it is further expected that an examination be conducted on the correlation between these essential infrastructures and relate to the real property value.

Therefore, this study purpose is to investigate and assess the impacts of inadequate infrastructures provisions on real property value, adopting a comparative study of Agbama and Ehimiri housing estates infrastructures provision in Umuohia city of Nigeria. So, the objectives of the study are:

- To identify through review the causes of inadequate infrastructures provisions;
- To assesses the likely impacts of these infrastructures inadequacy on real property value;
- To make recommendation on how to address the impacts, and this thereafter should improve and sustain the values of properties in housing estates.

The consideration of the study in the perspective should assist and make recognized of the impacts of these inadequacy infrastructures provision on housing estates value by owners, governments, policy/decision makers, educationalist and practitioners. And that by providing these indispensable infrastructures to housing estates should eradicate the famous impacts, as well as sustain the real properties and its values in housing estates and in the economy as whole.

CONCEPTUAL APPRAISAL ON INFRASTRUCTURE, CAUSES, REAL PROPERTY AND VALUE

Infrastructure

American heritage dictionary edition (2000), defines infrastructure as the basic facilities, services, and installations needed for the functioning of a community or society, such as transportation system, communications systems, water and power lines, schools, post offices and prisons. However, according to Ogbonna (2009), *infrastructure is the system of land-based physical assets and technology which collectively provide the enabling environment and deliver the services required to enhance economic growth and the quality of human life in the society*. Similarly, Nuhu (2008) suggested that infrastructure is the aggregate of all facilities that allows a city to function effectively. But, within the study frame, and as adopted here, infrastructure refers to a network of transport, communication and public (social) services – all functioning as a system or as a set of interrelated and mutually beneficial services provided for the improvement of the general well-being of the population (Ogbuozobe,1997). But, in any discourse on infrastructure, it is important to understand that infrastructures are broadly classified into two: physical (roads, electricity, telecommunication, drainage system, etc.); and social (education, health, recreation, housing etc.); (Olaseni and Alade 2012). In some clime, physical infrastructure is often referred to as economic infrastructure (Nubi, 2003), but in the research circumstance, the infrastructures considered are both the physical and social infrastructures provided or required to be provided to housing estates (for example Agbama and Ehimiri). Though, this study subjectively may have not offered detailed exploration on infrastructure. It is the study opinion that the next section should examine the causes of inadequate infrastructural provision in the society, and which reflect to contribute either positively or negatively to Agbama and Ehimiri housing estates situations in Umuahia city in Nigerian. Though, this present study empirical investigation and analysis is limited in these issues but should benefits for further study.

Factors Responsible for Inadequate Infrastructure Provision

Many factors are responsible for the inadequate infrastructure provision in Nigeria such as but not limited to: poor funding; poor governance; corruption; economic sabotage; poor maintenance culture; population explosion; and neglect of urban and regional planning laws (Olaseni and Alade, 2012).

Funding as one of the factor amongst the most significance factors to inadequate infrastructures provision has become a major challenge to infrastructural and other projects development in Nigeria for decades (Ihuah and Benebo, 2014; Alokun, 2008; Ayodele and Alabi, 2011; Odenyinka and Yusuf, 1997). This may be related to the incessant population increases in the country, associating with the increasing need or demand for infrastructure provisions in all sectors also increases since these infrastructures are harmonizing with the economic activities for growth and development. Unfortunately, the government resources and their allocation have hardly met the increasing demand for infrastructural projects adequacy provision in the Nigerian economic context and even to the other developing and developed countries.

Another serious factor is the continuous Nigeria's population's increase, which at the moment stood at about 160 million and growing at the rate of 3.2% per annum (Ebie, 2012). The physical and social infrastructures are required to be provided so as to support this huge population and their properties from decaying. Ebie went further to say that the increasing population growth, which is more than 50% urban is placing undue pressures on the existing infrastructures provided, as well as on governments' budgets over the years. Besides, Nigerian government has failed over time to integrate population policy with overall development planning (Marcellus, 2009). The short-fall in these infrastructural provision as a result of the increasing population growth continue to affect the economy negatively, and lowers productivity in every sector, and in addition, aggravates the property profiles of the country.

Apart from poor funding, another significant factor is the poor system of governance in the country, and which is largely responsible for the poor state of infrastructure provision in all sectors of the economy. For instance, Nigeria's fiscal revenues relative to GDP for 2013 have decreased from an estimated 25% to 14%. This low GDP growth of 11% is assumed to be largely on the inefficient allocation and poor management of the country's human and natural resources (Business Day May, 4, 2014)

Corruption has become a major socio-economic problem in Nigeria with negative effects on infrastructure development (Olaseni and Alade, 2012). Olaseni and Alade (2012) while emphasising went further to affirm that embezzlement of funds allocated for infrastructural development is a common feature in public offices. Also, many projects for which funds have been allocated and released were never completed while inflation of project costs is a common experience (Yunusa, 2011). The case of abandoned of projects is common because civil servants in charge of such projects collect bribe from contractors and this either results in sub-standard jobs or abandonment (Aigbokhan, 1999). According to Transparency International Report on Bribe Tax Prayers Index for 2011, Nigerian Civil Servants received \$3 billion bribes in 2010. Indeed the private companies were also said to be involved in such economic crimes (Saturday Punch. 2011).

Other factors to inadequate infrastructures provision are economic sabotage, lack of strong relevant policy support and poor maintenance culture practice in Nigeria and these factors has been acknowledged in the works of Odenyinka and Yusuf (1997) and Ayodele and Alabi, (2011), and therefore limited in their explanation in this study context. However, the next section investigates the real property and it values.

Real Property Value

Real property is defined as land, buildings and other improvements thereon and the legal rights relating to the asset - land (Ekenta, 2010). However, this definition is somewhat confusing as there is always a distinction between real property and real estate, though both terms are sometime used interchangeably in real estate profession literature and practice (Schram, 2012). Real property is defined as only the interests, benefits, and rights inherent in the ownership of real estate, while real estate is defined as only the physical land and the improvements thereon (Schram, 2012). This distinction clarify that real property cannot be both land and rights and that is the reason why most appraiser's are concerned in the interests substituting in the property than the property per se. At the same, the classification is according to their forms of ownership, use, etc., and which could be classified into possessory real property and non-possessory real property (Schram, 2012). The real property in any of its investment sector has the characteristics which are distinguishable from other investments, and to this, Kalu (2001) typically identified as including heterogeneity, risk, liquidity, and indivisibility. Others are: high cost of transfer; holding cost; income and capital growth; special ownership gains; imperfect knowledge;

perpetuity; and leverage or gearing (Kalu, 2001). However, the discussion above is not out of place, but the study context is on property value. Therefore, property value according to Ekenta, (2010) is the amount of money which can be obtained for the interest on a property at a particular time from persons able and willing to purchase it. Value in this case is not intrinsic but results from estimates made subjectively by able and willing purchasers of the benefits or satisfactions they will derive from ownership of the interest (Schrem, 2012). This applaud that value does not exists on its own but is created by certain condition and/or circumstances such as: its utility; scarcity; desirability; and effectiveness or effective purchasing power (Schram, 2012). There must be a strong association between these conditions in relation to the property demand and supply otherwise the property value would be inherent. Ekenta, (2010) contended that there are only two well know forms of property value such as capital value and rental value. But, Schram (2012) clarified that real property value comprises of the: market value, value-in-use, going concern value, investment value, liquidation value, assessed value, and insurance value. Therefore, these values should be sustained in any real property through availabilities of adequate infrastructural provisions such as those earlier mentioned. But, where these infrastructural projects are not provided in the housing estates, the consequences should bring a reduction on the combined values of what the properties ordinarily should have being when these infrastructures are completed and provided in the area. This is in a similar agreement with the assertion of Efenudu (2010) and Ihuah and Benebo (2014) that infrastructural projects abandonment would always affect property values in the vicinity.

METHODOLOGY

The section provides brief descriptive information about the Agbama and Ehimiri housing estate which is used in outline to this study context. It further demonstrates the methodological approach adopted for the collection of the relevant data, analysis and discussions on the emerging themes.

Brief Demographic Information about Ehimiri and Agbama Housing Estate

Ehimiri Housing Estate is a high and medium income residential neighbourhood. It is located in the State Capital and bounded by Ahiaeke, Ndume and Nkata Villages. It covers a land area of about 490 hectares. Accessibility into the estate is through a number of gates most of which fronts the Umuahia-Ikot Ekpene road. Major developments within the area are schools, corner shops, churches and residential properties. The estate is inhabited by people of diverse cultural and religious groups, majority of who is Igbos. A large proportion of the residents are civil servants working with Abia State Government. The housing units comprise bungalows, block of flats and detached houses.

Agbama Housing Estate is occupied by people of the low and middle income class. It covers a land area of about 1,500 hectares. Major developments within the area are schools, corner shops, hotels, religions properties and residential properties. The estate is inhabited by people of diverse cultural and religious groups, majority of who are civil servants, public servants, and other privately employed. The estate has about 3,500 housing units. The housing estate is bounded by Amakama village on the north, World Bank Housing estate on the south, Umudike Community on the west and Low Cost Housing Estate on the east.

The Study Process of Inquiry (Data Collection Method)

The process of inquiry describe the methods of a research investigation from the theoretical underpins through to the research philosophy, analysis, and to the drawing of the conclusion to the study (Yin, 2009; Saunders, *et al.*, 2009). Hence, the collection of data in the study was through primary and secondary sources. The secondary source includes

narratives from journal materials, textbooks and other visual materials, and these were used to substantiate the conceptual framework of the study. The primary source at first identified the study target population, which comprises housing units in Ehimiri and Agbama housing estates that have been completed and occupied. The choice of these two housing estates was because they presently constitute the major typical and competitive housing estate amongst the housing estates in Umuahia city of Nigeria. A total of 400 questionnaires were administered to both housing estate units residents/tenants and landlords; out of which 343 (85.6%) was retrieved and used for the study analysis. The presentation and analysis of data utilized the Statistical Package for Social Science (SPSS), particularly the descriptive frequency and percentage measures. Further, the Relative Importance Index (RII) was utilized in ranking these infrastructures based on the importance attached to each by the respondents. According to Lim and Alum (1995), RII is calculated by the formula:

$$R.I.I = (4n_4 + 3n_3 + 2n_2 + n_1) / 4N$$

Where:

N_4 = Strongly Agree (SA); n_3 = Agree (A); n_2 = Disagree (DA); n_1 = Strongly Disagree (SDA); and N = number of respondents.

RESULTS AND DISCUSSIONS

Available Infrastructures in Both Agbama and Ehimiri Housing Estate

Regarding this theme and in the study frame investigate and establish the infrastructures provided in both Agbama and Ehimiri housing estate. The results in Table 1 indicate and confirm that the major identified and significant infrastructures in Agbama and Ehimiri housing estate are roads; electricity supply; portable water supply; drainage system; waste management system; and recreational facilities. It further confirms that roads network: to; within; and fro; the housing estate units was the most importance infrastructure required in the housing estates and ranked 1st (R.I.I. Value 0.94500) as the most required infrastructure amongst these identified essential infrastructures. Electricity supply system was also identified as another essential infrastructure in housing estate, and was ranked 2nd (R.I.I. Value 0.91840) most importance amongst these infrastructures. Portable water supply system as an indispensable infrastructure in the housing estates was ranked 3rd (R.I.I. Value 0.91800) as the most significance amongst these identified infrastructures. For the drainage system, it was ranked 4th (R.I.I. Value 0.91620) as the most importance infrastructure amongst these identified infrastructures. The waste management system was ranked 5th (R.I.I. Value 0.91000) as the most importance infrastructure amongst these identified infrastructures. And the recreational facilities/services was ranked 6th (R.I.I. Value 0.90000) as the most importance infrastructure amongst these identified crucial infrastructures. The findings therefore confirm to the study circumstance that the above identified indispensable infrastructures are required to be in ample or adequate provision in a housing estate which agreed with the opinion of Ihuah and Benebo (2014), Olaseni and Alade (2012) and Aigbokhan (1999) in their respective study.

Table 1: Identified Infrastructure in Agbama and Ehimiri Housing Estate

Required Infrastructures	1	2	3	4	R. I. I. Value	Ranking
Roads	0	10	50	283	0.94500	1st
Electricity Supply	0	35	42	266	0.91840	2nd
Water Supply	0	30	53	260	0.91800	3rd
Drainage System	0	30	55	258	0.91620	4th
Waste Management System	0	25	75	243	0.91000	5th
Recreational Facilities	0	45	78	220	0.90000	6th

Despite the study verification of these crucial infrastructures in both housing estates, it permitted the further examination and establishment of the current situations of these infrastructures. Hence, the following discussed theme emerged. This is also as its indicate of Table 2 below, and likewise supports intuitively to demonstrate that these indispensable infrastructures were fundamental to either of the appreciating or diminishing value of real properties of housing estate units. Similarly, Figure 1 and 2 shows these infrastructures situation, but it further indicates the correlation of these infrastructures in each of the housing estates (Agbama and Ehimiri). However, it is hypothesized by this study specific that the more association these vital infrastructures are, the more their effects/influences would have on real property values, and while their influences overturn should be the rendition where in the finding is dissimilar to the former.

Table 2: The Situation of the Identified Indispensable Infrastructures in Both Housing Estates

Infrastructure	Attributes	Agbama Housing Estate		Ehimiri Housing Estate	
		Frequency	Percent	Frequency	Percent
Roads Situation	Tarred	0	0.0%	312	91.0%
	Tarred but Washed off	0	0.0%	11	3.5%
	Un-tarred	311	90.75%	20	5.5%
	Non-Useable by Motors	32	9.25%	0	0.0%
Electricity Supply Situation					
	Provided and Supplying Electricity	122	35.7%	330	96.0%
	Provided and Not Supplying Electricity	221	64.4%	9	2.6%
	Not Available or Provided at all	3	0.9%	4	1.2%
	Under Construction	0	0.0%	0	0.0%
Portable Water Supply Situation					
	Provided and Supplying Water	111	32.4%	280	81.6%
	Provided and Not Supplying Water	220	64.1%	58	16.6%
	Not Available or Provided at all	8	2.3%	5	1.5%
	Under construction/Provision	4	1.2%	0	0.0%
Drainage System Situation					
	Provided and Servicing the Estate Units	2	0.5%	312	91.0%
	Provided but Blocked	7	2.0%	7	2.0%
	Not provided at all	334	97.5%	24	7.0%
	Under Construction	0	0.0%	0	0.0%
Waste Management System Situation					
	Provided and Servicing the Estate Units	0	0.0%	322	93.9%
	Provided and Not Servicing the Estate Units	1	0.3%	12	3.5%
	Not Available or Provided at all	334	97.4%	3	0.8%
	Under construction/Provision	8	2.3%	6	1.8%
Recreational Facilities Situation					
	Provided and in Good Condition/Situation	50	14.6%	268	78.1%
	Provided and Not in Good Condition/Situation	120	35.0%	60	17.5%
	Not Available or Provided at all	170	49.6%	4	1.2%
	Under construction/Provision	3	0.8%	11	3.2%

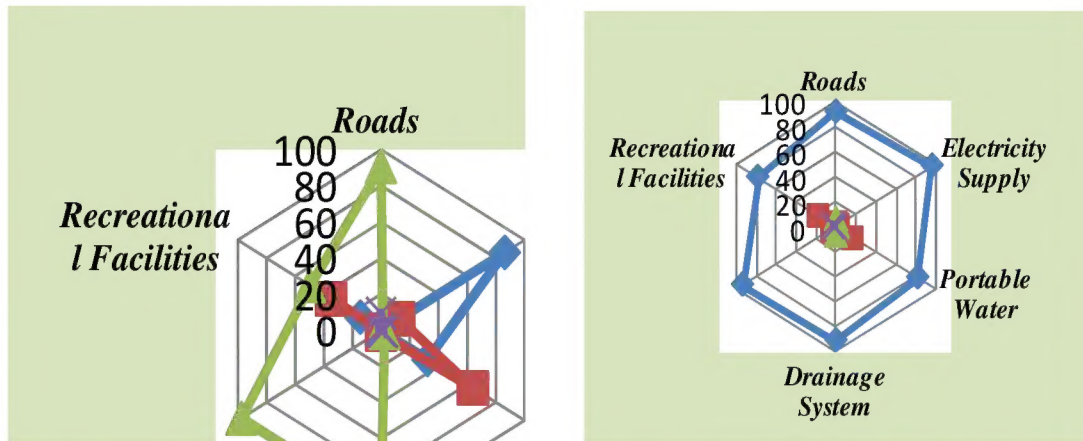


Figure 1 and 2: Shows Correlation of the Infrastructures in Agbama and Ehimiri Housing Estate Units
Colour Line Key **Blue Line** = Provided and Servicing the Housing Estate Units; **Red Line** = Provided but not Servicing the Housing Estate Units; **Green Line** = Not Available or Provided at all; **Purple Line** = Under Construction

Roads Network Situation

Table 2 results under this theme reveal the current situation of access roads in both housing estates. The findings show that none of the respondents rated the roads in Agbama housing estate as tarred, while another none rated it as being tarred but washed off and 90.75% (311 Nr) rated it as not tarred at all. Only 9.25% (32 Nr) rated it as not useable by motors. In Ehimiri housing estate, the situation was unlike Agbama housing estate as 91.0% (312 Nr) was rating the roads situation as tarred, whereas 3.5% (11 Nr) rated it as tarred but washed off and 5.5% (20 Nr) rated it as not tarred at all. Not useable by motors had any from the respondents. This confirms in the study frame that significant number (at least 91.0%) of the roads in the Ehimiri housing estate was tarred and in useable situation by the residents/tenants of the housing estates as compared to Agbama housing estate that significant number (almost 100.0%) of the roads was not tarred and not useable by the residents/tenants of the housing estate. This arguably benefits in the gradual increasing in rental value of property types in Agbama housing estate and the high appreciating rental value of property types in Ehimiri housing estate.

Electricity Supply Situation

This theme investigates the electricity supply situation in both housing estates. The findings as indicate of Table 2 and Figure 1 and 2 reveal that in Agbama housing estates, 35.7% (122 Nr) rated the electricity supply facilities as being provided and supplying electricity, while 64.4% (221 Nr) rated this infrastructure as being provided but not supplying electricity and 0.9% (3 Nr) rated it as not available or provided at all. None rated the infrastructure as being under construction. For Ehimiri housing estate, the indication was apparently difference as 96.0% (330 Nr) rated the infrastructure as being provided and supplying electricity, whereas 2.6% (9 Nr) rated it as being provided but not supplying electricity and 1.2% (4 Nr) rated it as not available or provided at all. Further, none of the respondents was rating this infrastructure as under construction. These results in this paper surround confirm that there was significant (at least 96.0%) electricity supply (infrastructure) provision in Ehimiri housing estate as against Agbama housing estate that most (at least 64.4%) of the housing estate units were provided with electricity supply facilities but not functional. These verifications constructively supports the declining or nominal appreciating annum rental value of properties in Agbama housing estate (see Table 4) and the sustaining high annual rental value in Ehimiri housing estate.

Portable Water Supply Situation

Concerning this theme, it assesses the portable water supply situation in Agbama and Ehimiri housing estates. The results as shown in Table 2 and Figure 1 and 2 indicate that Agbama housing estate units was 32.4% (111 Nr) rated as being provided and supplied with portable water, while 64.1% (220 Nr) rated this infrastructure as being provided but not supplying portable water to the housing estate units and 2.3% (8 Nr) rated it as being not available or not provided at all. Only 1.2% (4 Nr) of participants was rating the infrastructure as being under construction in the housing estate units and its environment. But, for the case of Ehimiri housing estate, 81.6% (280 Nr) was rating this infrastructure as being provided and supplying portable water to the housing estate units. While 16.0% (58 Nr) rated it as being provided but not supplying portable water, 1.5% (5 Nr) rated it as not available or provided at all and none rated this infrastructure as under construction. These findings confirm to the study that there was adequate (at least 81.6%) provision of portable water supply in Ehimiri housing estate as compared to not adequate (at least 64.1%) provision of portable water supply in Agbama housing estate. This verification is also supporting the appreciating and nominal annum rental values of properties within these housing estates.

Drainage System Situation

Again, Table 2 and Figure 1 and 2 in this theme show the results of the current situation of the drainage system within these housing estates. The results indicate that it was by 97.5% (334 Nr) that rated drainage system in Agbama housing estate as not available or provided at all as compared to 91.0% (312) that rated drainage system in Ehimiri housing estate as available and in good condition. The overall findings confirm to the study background that drainage system was available and in good condition in Ehimiri housing estate, but were not available in Agbama housing estate. This also add to the resulting reduction or static property types' annum rental value in the Agbama housing estates units, and the appreciating high property types rental value in Ehimiri housing estate units.

Waste Management System Situation

Regarding this theme and the results as indicate of Table 2 and Figure 1 and 2, it is revealed in this study frame that waste management system provision was at least 97.4% not available or provided at all in Agbama housing estate. While waste management system provision was at least 93.9% provided and serving the Ehimiri housing estate units. The overall findings confirm that there was significant lack or inadequate waste management system provision in Agbama housing estates as compared to an adequate waste management system provision in Ehimiri housing estate. As a result, ensuing high appreciating property types rental value in Ehimiri housing estate, while reluctant appreciating property types' rental value perpetuates in Agbama housing estate.

Recreational Facilities/Service Situation

Regarding this theme which assessed the recreational facilities situation, the results in Table 2 and Figure 1 and 2 reveal that in Agbama housing estate, 14.6% (50 Nr) was rating recreational facilities as being provided and serving the housing estate residents/tenants, while 35.0% (120 Nr) was rating it as being provided but not functional and 49.6% (170 Nr) was rating it as not available or provided at all. A further 0.8% (3 Nr) of the respondents was rating it as being under construction. However, in Ehimiri housing estate, this indispensable infrastructure situation was unlike its competitor in this paper specific as 78.1% (268 Nr) rated it as being provided and serving the housing estate units, whereas 17.5% (60 Nr) rated it as being provided but not functional and 1.2% (4 Nr) rated it as not available or provided at all.

Only 3.2% (11 Nr) rated it as being under construction. These findings confirm that these indispensable infrastructures were at least 84.0% not available or inadequately provided in Agbama housing estate, while at least 78.1% signified this infrastructure adequate provision in Ehimiri housing estate. Again, this finding supports the appreciating property types' annum rental value experienced in Ehimiri housing estate and the dwindling or static property types rental value comprehended in Agbama housing estate (*see Table 3 and 4*)

Following the overall critical evaluation of these findings and of reference Figure 1 and 2 indicate dissimilarity amongst both Figures. Figure 1 interpretatively reveals weak positive association between the identified indispensable infrastructures in Agbama housing estate units. This association should be unproductive and insufficient to greatly influence and sustain the actual properties rental value of the housing estate units at the open market condition, rather a dwindling rental value manifesting from 2007 to 2014 in Agbama housing estate (*see Table 4*). However, in Figure 2, the position is unlike its counterpart as there exist stronger positive correlation between these indispensable infrastructures, This interpretatively prove and supports the high appreciating (actual) rental value of property types experienced from 2007 to 2014 under open market condition in Ehimiri housing estate (*see Table 3*).

Property Types Rental Value Per Annum in Ehimiri and Agbama Housing Estate

The analysis and results in Table 3 and 4 show the property rental value for each property types in both housing estates.

Table 3: Trends in Rental Values at Ehimiri Housing Estate

Accommodation Types	Each Property Type Rental Value Per Annum in Ehimiri Housing Estate							
	2007 (N)	2008 (N)	2009 (N)	2010 (N)	2011 (N)	2012 (N)	2013 (N)	2014 (N)
1 Bedroom Flat	110,000	110,000	120,000	120,000	150,000	150,000	180,000	180,000
2 Bedroom Flat	135,000	135,000	150,000	150,000	180,000	180,000	200,000	220,000
3 Bedroom Flat	140,000	160,000	160,000	180,000	200,000	200,000	240,000	280,000
Bungalow	180,000	180,000	200,000	200,000	240,000	240,000	280,000	320,000
Detached House	300,000	300,000	240,000	340,000	400,000	400,000	420,000	420,000

Table 4: Trends of Rental Values at Agbama Housing Estate

Accommodation Types	Each Property Type Rental Value Per Annum in Agbama Housing Estate							
	2007 (N)	2008 (N)	2009 (N)	2010 (N)	2011 (N)	2012 (N)	2013 (N)	2014 (N)
1 Bedroom Flat	50,000	50,000	75,000	75,000	100,000	100,000	110,000	110,000
2 Bedroom Flat	75,000	75,000	100,000	100,000	120,000	120,000	130,000	130,000
3 Bedroom Flat	90,000	90,000	110,000	110,000	130,000	130,000	150,000	150,000
Bungalow	110,000	110,000	140,000	140,000	180,000	180,000	200,000	200,000
Detached House	150,000	150,000	200,000	200,000	240,000	240,000	280,000	280,000

From the findings, it is revealed, as well as confirmed that property rental value in each of the property types appreciate more in Ehimiri housing Estate as compared to the property rental value for the same property type in Agbama housing estate. This occurs despite that both housing estates sharing similarities both in the housing estate units design and in the quality of their finishing's. The justifications and supports to these findings should also be qualified by the findings of the infrastructures situations and/or conditions in both housing estates earlier revealed in Table 2 above, as well as to the level of correlation of these essential infrastructures (Figure 1 and 2) above. These, the overall findings objectively confirm that infrastructural provisions were of more available and adequate in Ehimiri Housing Estate as compared to inadequate

infrastructural provisions established in Agbama Housing Estate. Hence, this contributes to the sustainable and appreciating rental value of the property types in Ehimiri housing estate than as experienced in Agbama housing estate.

CONCLUSIONS AND RECOMMENDATIONS

The paper has established clearly from the conceptual underpins and empirical analysis that infrastructural provisions was critical to the sustainable and appreciating rental, as well as capital value of property types in housing estate and even to the economic activities functioning in any city at large. These indispensable infrastructures were: access roads; electricity supply, water supply; drainage system; waste management system; and recreational facilities. The study further demonstrate that amongst these indispensable infrastructures, good access roads and electricity supply were the most significant infrastructures required in housing estates when their Relative Importance Index (RII) value is utilized. As well as water supply, drainage system, waste management system and recreational facilities were equally verified based on their respective Relative Importance Index (RII) value as amongst the most important infrastructures of essential (and adequate) provision in housing estates. The exploration of this study has confirmed that significant provision of these infrastructures in housing estate contributes and supports sustainable property types' rental value appreciation rationale in housing estate. In contrary, it should feature dwindling or static property types' rental value in housing estate. The reflection of the study should ensure that adequate provision of these indispensable infrastructures met in any housing estate development by government, individual, organizations and other relevant stakeholders benefiting in housing estate units supply. Further, it should boost the satisfactions and living conditions of the residents/tenants, as well as promoting an improved and sustainable property value of housing estate units.

However, it is recommended that an empirical investigation should be conducted on the causes of inadequate infrastructures provision identified in the conceptual framework. This should assist to establish if these causes would have strength association with these indispensable infrastructures and then the probability of either positively or negatively influencing property value of housing estate units.

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